

Original Article

Clinicopathological Study of Salivary Gland Tumours

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Abstract:

Background: Salivary gland tumours are relatively uncommon and constitute 3% to 10% of all head & neck neoplasms. The majority of salivary gland tumours arise in the parotid gland.

Objectives: To search the clinicopathological presentation of salivary gland tumours.

Methods: This was a cross sectional study.

Results: The highest incidence of benign tumors was in the 3rd and 4th decade, whereas for malignant tumor it was the 5th decade of life. Among 47 male patients, 72.3% had benign and 27.7% cases had malignant tumours. Out of 40 female patients 45% cases had benign and 55% cases had malignant tumours. With overall male: female ratio was 1.2:1. Among parotid gland tumours 62.32% had benign and 37.68% cases had malignant tumours. Out of 12 submandibular gland tumours 41.67% cases had benign and 58.33% cases had malignant tumours. Among 35 malignant tumours, 12 Mucoepidermoid carcinoma, the majority occurred in the parotid gland 10(83.3%) followed by submandibular gland 1(8.3%) and minor salivary glands 1(8.3%). Out of 11 cases reported as Adenoid cystic carcinoma, the majority involved submandibular gland 6(54.5%) followed by parotid gland 4(36.4%).

Conclusion: Benign salivary gland tumours are more common than malignant ones. There is male preponderance in the incidence of salivary gland tumours. Pleomorphic adenoma is the most frequently encountered tumour among all salivary gland tumours.

Keywords: Salivary gland, Tumours, Mucoepidermoid carcinoma

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Introduction:

Salivary glands are anatomical and functional adnexae of the oral cavity that seldom give rise to tumours. These tumours are rare and constitute approximately 3% to 10% of neoplasm of the head-neck region^{1,2} and 2.8% to 10% of all head and neck cancers in African studies.³

The first classification of salivary gland tumours developed by the world health organization (WHO) in 1972, the classification was revised in 1992 and recategorized several of the salivary gland tumours.⁴

Regarding malignant entities, the mucoepidermoid carcinoma, the adenoid cystic carcinoma and carcinoma ex-pleomorphic adenoma are very frequently found. Incidence rate of malignant salivary gland tumours 0.5 to 1.2 cases per 100000 in habitants per year.^{5,6} Mucoepidermoid carcinoma (MEC) comprises approximately 10-15% of all salivary gland neoplasms and about 30% of salivary malignancies.⁶

Salivary gland tumours were observed in all ages but the highest incidence is observed in 3rd and 4th decade for benign tumours and 4th and 5th decades for malignant tumours.⁷

Environmental factors like radiation, viruses, diet and certain occupational exposures can increase the risk of developing tumours of the salivary glands.

Nearly all salivary gland neoplasms present as slowly growing painless masses which have often been present for several years. Some malignant cases may present with pain and paralysis of the cranial (facial) nerve⁴, unfortunately pain is not a reliable indication of malignancy.⁸

Salivary gland tumours may have association with age, sex, geographic area, occupation and socioeconomic status of the patients.

The result of this study may help us for early diagnosis and proper management of the disease.

Objectives:

- To evaluate the frequency of salivary gland tumours among the study subjects.
- To observe the type of salivary gland tumours.
- To observe the clinical presentation of benign and malignant tumours of salivary glands.
- To observe the different demographic factors related to salivary gland tumours.

Materials and Methods:

This cross sectional study was conducted at the Department of ENT & Head-Neck Surgery, Dhaka Medical College Hospital, Dhaka from July 2017 to June 2018. Eighty seven patients with salivary gland tumours were included for the study sample. All cases were thoroughly searched by history taking, clinical examination and the relevant investigations such as FNAC and histopathological examination of the resected specimen. The patients of both sexes and different age groups were included in this study.

Inclusion criteria:

All Patients admitted to Department of ENT & Head Neck Surgery Dhaka Medical College Hospital with sign and symptoms of salivary gland tumours.

Exclusion criteria:

- a. Patients with autoimmune salivary gland swelling.
- b. Patients with inflammatory salivary gland swelling.
- c. Patients with history of previous surgery for salivary gland tumours.
- d. Patient who do not want to be included in this study.

Results

Results of study is shown in following tables.

Table I:
Age distribution of salivary gland tumors (n=87)

Age group (years)	Benign tumors(n=52)		Malignant tumors(n=35)		Total (n=87)	
	n	%	n	%	n	%
<20	2	3.8	1	2.9	3	3.4
21-30	6	11.5	1	2.9	7	8.0
31-40	21	40.4	6	17.1	27	31.0
41-50	15	28.8	14	40.0	29	33.3
51-60	5	9.6	7	20.0	12	13.8
61-70	2	3.8	4	11.4	6	6.9
>70	1	1.9	2	5.7	3	3.4
Total	52	100.0	35	100.0	87	100.0
Mean \pm SD	42.5 \pm 6.15		44.7 \pm 5.94		43.6 \pm 6.10	
Range	(18-76)		(20-80)		(18-80)	

Table II:
Presenting features both benign & malignant tumours of salivary glands (n=87)

Symptoms	Parotid gland (69)		Sub mandibular (12)		Minor Salivary gland (6)	
	Benign	Malignant	Benign	Malignant	Benign	Malignant
Swelling	43	26	5	7	4	2
Pain	-	11	-	3	-	-
Facial palsy	-	5	-	-	-	-
Skin involvement	-	3	-	-	-	-
Trismus	-	1	-	-	-	-
Ear problem	-	3	-	-	-	-
Palpable lymph node	-	3	-	1	-	-

Table III:
Frequency of salivary gland tumours according to diagnosis and site (n=87)

Type of tumour	No of patients	Benign No. (%)	Malignant No. (%)
Parotid gland	69	43(62.32%)	26(37.68%)
Submandibular gland	12	5(41.67%)	7(58.33%)
Minor salivary gland	6	4(66.7%)	2(33.3%)

Table IV:
Distribution of benign tumours in salivary glands (n=52)

Site	Parotid gland (n=43)		Submandibular gland (n=5)		Minor salivary gland (n=4)	
	No.	%	No.	%	No.	%
Pleomorphic adenoma	27	62.8	4	80.0	4	100.0
Warthin's tumor	9	20.9	0	0.0	0	0.0
Monomorphic adenoma	2	4.7	1	20.0	0	0.0
Myoepithelioma	2	4.7	0	0.0	0	0.0
Basal cell adenoma	1	2.3	0	0.0	0	0.0
Schwannoma	1	2.3	0	0.0	0	0.0
Lipoma	1	2.3	0	0.0	0	0.0
Total	43	100.0	5	100.0	4	100

Table V:
Distribution of malignant tumours in salivary glands (n=35)

Site	Parotid gland (n=26)		Submandibular gland(n=7)		Minor salivary gland(n=2)	
	No.	%	No.	%	No.	%
Mucoepidermoid carcinoma	10	38.5	1	14.3	1	50.0
Adenoid cystic carcinoma	4	15.4	6	85.7	1	50.0
Carcinoma ex- pleomorphic adenoma	3	11.5	0	0.0	0	0.0
Adenocarcinoma NOS	2	7.7	0	0.0	0	0.0
Unclassified malignant tumor	2	7.7	0	0.0	0	0.0
Basal cell carcinoma	2	7.7	0	0.0	0	0.0
Squamous cell carcinoma	1	3.8	0	0.0	0	0.0
Metastatic undifferentiated carcinoma	1	3.8	0	0.0	0	0.0
Acinic cell carcinoma	1	3.8	0	0.0	0	0.0
Total	26	100.0	7	100.0	2	100.0

Discussion:

In this study, out of 87 study subjects, 52(59.8%) had benign and 35(40.2%) had malignant tumours, representing a ratio of 1.5:1. Salivary gland tumors were observed in all ages ranged from 18 to 80 years. The highest incidence of benign tumors was in

the 3rd and 4th decade, whereas for malignant tumor it was the 5th decade of life. The mean age of benign tumours were 42.5±6.15 years and malignant tumours 44.7±5.94. A large number of benign tumours were in the 3rd decade.⁹ In different study demonstrated the maximum patients (24%) were in the age

range of 41-50 years and the mean age for benign tumors was 40.36 years and mean age for malignant tumours was 40.76 years.¹⁰ These findings are consistent with present study.

In present study, Among 47 male patients, 72.3% had benign and 27.7% had malignant tumours. Among 40 female patients 45% had benign and 55% had malignant tumours. Male: female ratio was 1.2:1. Thus the slight male predominance was consistent with study of Frable and Stewart^{11,12}.

In this study pain was an important symptoms of malignancy tumours, and presented in 14 patients, followed by facial palsy 5 study subjects, skin involvement 3 study subjects. These features became evident within 1-3 years 52 (59.77%), followed by <1 year, 16 (18.39). Similar findings were reported in some other studies.^{13,14}

In the present series, parotid was the commonest site of tumour 69(79.31%) followed by submandibular gland 12(13.79%) and minor salivary glands 6(6.9%). Here parotid gland was most commonly involved site (84.0%) followed by submandibular gland (16.0%). Among 35 pleomorphic adenomas in this series, the majority occurred in the parotid gland 27(77.1%) followed by submandibular gland 4(11.4%) and minor salivary glands 4(11.4%). Nine was Warthin's tumor in parotid gland. Monomorphonic adenoma in the parotid gland was 2 (66.7%) followed by submandibular salivary glands 1(33.3%). Others were basal cell adenoma, schwannoma and lipoma, 1 cases in each category.

In present study among 35 malignant tumours, 12 mucoepidermoid carcinoma, the majority occurred in the parotid gland 10(83.3%) followed by submandibular gland 1(8.3%) and minor salivary glands 1(8.3%). Among 11 adenoid cystic carcinoma, the

majority involved submandibular gland 6(54.5%) followed by parotid gland 4(36.4%). There were 3 Carcinoma ex-pleomorphic adenoma, 2 unclassified tumours, 2 basal cell carcinoma in parotid gland.

In the majority of case series, pleomorphic adenoma was the most common benign salivary gland tumour of salivary glands.^{9,15} One case of lipoma was seen in this study. Literature review reveals that these are rare neoplasms of the parotid.¹⁶ Schwannoma presenting as primary salivary gland neoplasm is thought to arise from the facial nerve. We found one case of schwannoma in parotid gland. Mucoepidermoid carcinoma was reported to be the most common malignant salivary gland tumor of parotid.^{17,18}

In the present series, carcinoma ex pleomorphic adenoma is a rare aggressive malignancy that is believed to arise from a pre-existing adenoma. We found 3 cases of carcinoma ex-pleomorphic adenoma in parotid gland. Primary squamous cell carcinoma of the salivary gland is rare, only 1 case was found.

In parotid gland, Reddy et al reported 10.67% mucoepidermoid carcinoma and 37.14% were carcinoma in pleomorphic adenoma. In another series, mucoepidermoid carcinoma was found in 18% and carcinoma in pleomorphic adenoma found in 6.9%.^{18,19}

Conclusion:

Benign salivary gland tumours are more common than malignant ones. There is male preponderance in the incidence of salivary gland tumours. Pleomorphic adenoma is the most frequently encountered tumour among all salivary gland tumours. Mucoepidermoid carcinoma is the most common malignant tumour of salivary glands and parotid is the commonest site for the mucoepidermoid carcinoma.

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